

Final Performance Report for NAG5-12570

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PI: Dr. Brian McLean, Space Science Telescope Institute
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Grant Administrator: Paula K. Sessa
Lead Sponsored Programs Administrator
Contracts and Sponsored Programs
Space Science Telescope Institute
3700 San Martin Drive
Baltimore, MD 21218
Phone: 410.338.4816
Email: sessa@stsci.edu

Submitted to: 1) Technical Officer:

Dr. Jeffrey Hayes
Code S
NASA HQ, 300 E St. SW
Washington, D.C. 20546-0001

2) Administrative Grant Officer:

Office of Naval Research
100 Alabama Street
Suite 4R15
Atlanta, Georgia 30303-3104
Attn: Deborah White, Closeout Team
(404) 562-1600

3) NASA Grant Officer:

Ms. Carolyn Gonser
Grants Officer, Code 210G
NASA Goddard Space Flight Center
Greenbelt Rd.
Greenbelt, MD 20755
(301) 286-4589

4) Center for Aerospace Information (CASI):

Attn: Document Processing Section
7121 Standard Drive
Hanover, MD 21076

Introduction

The Space Telescope Science Institute worked on a project to augment the Digitized Sky Survey archive by completing the scanning and processing of the POSS-I blue survey. This will provide an additional valuable resource to support UV-mission planning. All of the data will be made available through the NASA optical/UV archive (MAST) at STScI.

Activities completed during project

The scanning of the POSS-I blue survey was completed as planned. The photographic glass plates are digitized using a custom designed scanning system built on top of a PDS microdensitometer. This system uses a laser and an acousto-optic crystal to simultaneously scan multiple raster scan lines, whilst using a separate laser metrology system to control the carriage position to better than 1 micron. Each image consists of a 23040 x 23040 raster of 15 micron pixels, which corresponds to 1 arcsecond on the sky. This 1.1 GB file is both archived to an 8mm tape and a magneto-optical disc for our archive backups (currently ~ 7 TB of raw image data). The raw data are being moved to a NAS RAIDarray for inclusion in the MAST archive.

Each scan is then processed to compress the data volume by a factor of ~10 using the same image compression algorithm developed for the DSS-I in order to provide compatibility with existing software systems. These compressed data files are written to CDROM and sent to the Canadian Astronomical Data Center (CADC) for duplication and distribution to the collaborating institutions. They are also copied to a NAS RAIDarray – which is used to serve the data to users via a MAST web server.

At the time of the performance completion date over 90% of the survey images have been compressed and made available to the community. The remaining images will be processed as staff resources permit as part of the ongoing data maintenance of the DSS.

The grant funding was used for the following purposes:

- Purchase of RAID array to store the final compressed data for public distribution
- Salary of staff performing the work